

**MEMORANDUM****MONTGOMERY WATSON**

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**Date:** May 8, 1996

US EPA RECORDS CENTER REGION 5



451207

**cc:** Ron Frehner (612) 639-0923

**From:** Peter Vagt *PSV*

**Subject:** Revised Text, Tables, and SOPs for Wetland Sampling  
ACS NPL Site RD/RA Pre-Design Investigation

Montgomery Watson has revised the text, tables, figures, and SOPs for the Wetland Sampling in accordance with the comments provided by U.S. EPA on April 23, 1996. Please find the following attached for review and approval.

1. Revised text from the Pre-Design Work Plan
2. Revised Table 4-2 from the Pre-Design Work Plan
3. Revised Figure 4-5 from the Pre-Design Work Plan
4. Revised text from Section 3.3 of the FSP
5. Revised text from Section 5.3.3 of the FSP
6. Revised Figure 7 from the FSP
7. Revised Table 1.1 from the QAPP
8. Revised Table 1-3 from the QAPP
9. Revised page 2 of Sediment Sampling SOP
10. Surface Water Sampling SOP
11. Cross reference of Surface Water and Sediment Sampling Numbers

We have scheduled a site visit on May 12 or 13, 1996 to mark the sampling locations. The sampling will be completed within the next week to ten days. I have left several voice mail messages for Mark Chapman, informing him of the schedule. If he is not able to be at the site on either of these days, the visit can be re-scheduled, with U.S. EPA approval.

PJV  
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# Revised Text from Pre-Design Work Plan

The surface water and sediment sample parameters for this investigation were selected based upon the U.S. EPA finding that a specific constituent may pose a risk to wetland or aquatic species, and if the constituent was actually detected in groundwater, surface water or sediment samples near the wetlands. Based upon this approach, surface water samples will be analyzed for VOCs, SVOCs, PCBs, zinc, cadmium, lead, iron, mercury, and cyanide (Table 4-2).

Using the above described approach, sediment samples would be analyzed for SVOCs, heptachlor epoxide, PCBs, arsenic, cadmium, chromium, copper, lead, mercury, and zinc, however, heptachlor epoxide was not detected in the RI wetlands sediment samples (SD03, SD04, SD11, SD12, and SD16) and therefore heptachlor epoxide will not be included in the parameter list. VOCs will be added to the parameter list because some of the samples will be collected in areas not previously studied (i.e., north of the On-Site Containment Area), and VOCs are a common contaminant at the ACS site. Therefore, the sediment sample parameter list will include VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, copper, lead, mercury and zinc (Table 4-2).

#1  
#2  
Recently, Mr. James Tarpo of ACS indicated to Mr. William Bolen of the U.S. EPA that historically, there had been direct runoff to the north of the On-Site Containment Area, and so three soil/sediment sample locations are proposed to determine the presence or absence of impacts in this area (SD28, SD29, and SD30) (Figure 4-5). Other areas of potential runoff from the ACS plant site will also be sampled further including the near vicinity of RI samples SD3, (SD21, SD22, and SD23), SD4 (SD20), SD11 (SD26 and SD27), SD12 (SD24 and SD25) and SD16 (SD17, SD18, and SD19). Proposed sample locations SD31 and SD32 will be collected near the RI sample SD7C. Three sediment samples (SD33, SD34, and SD35) will be collected at the proposed location of the groundwater treatment effluent discharge diffusers (Figure 4-5). Two proposed samples (SD36 and SD37) will be collected in the marsh area northwest of the proposed sample locations of SD24 and SD25, due to groundwater contamination found during the upper aquifer investigation. Proposed sample locations are based upon topography, surface water routing, and past sampling results. The proposed sample locations, SD17 through SD37 are shown on Figure 4-5. One sample will be collected from the top six inches of soil/sediment at each location and submitted for laboratory analysis. The samples will be analyzed for VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, copper, lead, mercury, and zinc at Level IV DQO using the CLP Statement of Work according to the QAPP and FSP (Table 4-2).

#5  
Surface water samples will be collected from the drainage ditch that runs on the north and west of the wetlands and a tributary (Figure 4-5). Two surface water samples will be collected at an upstream location (SW9 and SW14) and four in downstream locations (SW10, SW11, SW12, and SW13) and from pooled water within the wetlands (i.e., the tributary). The upstream sample locations will provide an indication of the quality of the surface water entering the ditch from offsite. Surface water samples from the ditch will provide an indication of the quality of the groundwater discharging to the wetlands, although such samples will also include potential effects from upstream influences and groundwater discharge from areas on the opposite side of the ditch from ACS. Samples will also be collected from standing water in the

wetlands, if possible. Water samples of standing water in the wetlands would provide the best data to evaluate the potential impacts of groundwater discharge to the wetlands, and up to three such samples may be substituted for downstream ditch samples as conditions permit. Surface water samples will be analyzed for VOCs, SVOCs, PCBs, zinc, cadmium, lead, mercury, cyanide, and iron at Level IV DQO using CLP Statement of Work according to the QAPP and FSP (Table 4-2).

#3  
#4  
Two surface water samples (SW15 and SW16) will be collected at the sediment sampling locations SD37 and SD36, respectively. Surface water samples SW18, SW19, and SW20 will be collected from three locations in the cattail marsh near the area where the groundwater treatment effluent will be discharged (Figure 4-5). These surface water sampling locations correspond with sediment sampling locations SD33, SD34, and SD35. Surface water sample SW17 will be collected from the ditch where the RI sample SD7C was collected (Figure 4-5). This sample location corresponds with sediment sample SD31. The samples will be collected and analyzed as described above, and the actual locations will be staked and labeled in the presence of U.S. EPA and/or IDEM representatives before sampling activities begin.

#### 4.4 WELL ABANDONMENT

Monitoring well ATMW-4D, the two unused ACS water supply wells, and Griffith Landfill monitoring well MW-4D are proposed for abandonment. ATMW-4D is located west of the ACS plant area near the eastern boundary of the wetlands, and was installed by ATEC Associates Inc. for the ACS Site owners in a previous investigation. A letter from ATEC Associates, Inc. (May 2, 1986) to Mr. Rundio, Attorney for ACS at that time, stated that the original well ATEC well ATMW-4D was replaced because grout was improperly placed around the well screen as indicated by high pH results. The well construction documentation for the replacement well is not available to us at this time, and so the well construction is not known.

Griffith Landfill well MW-4D is located near the northwest corner of the Offsite Area, between the Griffith landfill and the Offsite Area, and was installed by the owner/operators of the Griffith Municipal Landfill. The IDEM geologist overseeing the Griffith Landfill stated that he believed that well MW-4D is leaking based upon the water chemistry of samples from MW-4D. The chloride concentration in samples from the upgradient well MW-1D ranged from 41 to 56 mg/l, and the chloride concentration in the samples from well MW-4D ranged from 148 mg/l to 170 mg/l over the same time period. Chlorides are a conservative, non-reactive, non-degrading constituent of typical landfill leachate. Griffith Landfill leachate chloride concentrations ranged from 229 mg/l to 902 mg/l.

As discussed in Section 2, there are two unused ACS water supply wells screened to the Lower Aquifer. The well construction is not known and it is suspected that they were not double cased through the clay confining layer and could serve as a conduit for contamination from the Upper Aquifer to the Lower Aquifer.

None of the wells described above is part of the ACS NPL Site monitoring well network and

Pre-Design Comment #1 + #2

**TABLE 4-2**  
**Sample Type and Estimated Sample Numbers**  
**American Chemical Service, Inc. NPL Site**  
**Remedial Investigation**

<u>Sample Matrix</u>	<u>Lab</u>	<u>No. of Samples</u>	<u>Field Duplicates</u>	<u>Field Blanks</u>	<u>MS/MSD</u>	<u>Total No. Samples</u>	<u>Lab Parameters</u>	<u>Field Parameters</u>	<u>Lab Methods</u>
<u>UPPER AQUIFER INVESTIGATION</u>									
Groundwater	None	50	-	-	-	50	None	VOC Screening	Vendor
<u>DETECTION/COMPLIANCE MONITORING</u>									
Groundwater	IEA	19	2	2	1	24	Volatiles	pH, Cond, temp	CLP/SOW OLM01.9
		19	2	2	1	24	SVOCs		
		19	2	2	1	24	PCBs		
		19	2	2		23	Metals		
<u>RESIDENTIAL WELL SAMPLING</u>									
Groundwater (Low Level)	IEA	-	-	-	-	-	Volatiles	pH, Cond, temp	CLP/SOW 10/92
<u>WETLANDS SAMPLING</u>									
Surface Water	IEA	12	2	2	1	17	Volatiles	pH, Cond,	CLP/SOW OLM01.9
	IEA	12	2	2	1	17	Semi-Volatiles	temp, DO	
	IEA	12	2	2	-	16	Pb, Hg, Zn, Cd, CN		CLP/SOW ILM02.0
	IEA	12	2	2	1	17	PCBs		CLP/SOW OLM01.9
Soil/Sediments	IEA	21	3	-	2	26	VOCs		
	IEA	21	3	-	2	26	SVOCs		
	IEA	21	3	-	2	26	PCBs		

IEA 21 3 - - 24 As, Cd, Cr, Cu, Hg, Pb, Zn

CLP/SOW  
ILMC3.0

# General Notes:

1. Unless otherwise noted, samples will be considered low concentration, and will be packaged and shipped accordingly.
2. Lab Address and Telephone Number  
IEA Laboratories  
3000 Weston Parkway  
Cary, North Carolina 27513  
1-800-444-9919
3. A trip blank for VOC analysis will be included with each cooler shipped for aqueous (groundwater and surface water) samples. Trip blanks are not included in the total number of samples.
4. Field duplicates will be collected at a ratio of 1 field duplicate for each 10 investigative samples collected.
5. Field blanks will be collected at a ratio of 1 field blank for each 10 aqueous investigative samples collected.
6. EXTRA VOLUME REQUIREMENT: Extra volume is required for the MS/MSD quality control requirements for aqueous samples (triple volume for VOCs, double volume for SVOCs and PCBs.). MS/MSD samples will be collected at a ratio of 1 MS/MSD for each 20 investigative samples. Samples collected for metals and indicators require DUP/MS quality control analyses, however, do not require additional volume to meet the specified QC.
7. Refer to Tables 3-1 through 3-4 for the organics, metals, and groundwater VOC screening parameters and their required detection limits.

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Developed By	PMS,DAP,MJH	Drawn By	TMS,LCL,TPB	<b>WETLANDS SAMPLE LOCATION MAP</b>  PRE-DESIGN WORK PLAN AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA 	Drawing Number	4077.0030	<b>A1</b>  <b>MONTGOMERY WATSON</b> 
Approved By		Date					
Reference							
Revisions							

## Revised Text from Section 3.3 of the FSP

submitted to the U.S. EPA and IDEM within two weeks of data validation. The plan will consider the parameters of concern, direction of groundwater flow, aquifer of concern, and proximity of downgradient residential wells. The plan will present recommendations which may include retesting of selected monitoring wells for CLP VOCs, SVOCs, PCBs, or selected metals depending on the parameters of concern, additional groundwater investigations, or residential well sampling downgradient of the well where groundwater sample results indicate an exceedence of the Performance Standards.

If constituents are detected that are not listed in Appendix B of the SOW, they will be evaluated to determine if they are present at a concentration that in combination with the other detected constituents, would exceed a cumulative risk of  $1.3 \times 10^{-5}$  cancer risk or a cumulative non-cancer risk or hazard index greater than unity as established in the ROD. If the detection of a non-Appendix B (SOW) constituent results in the exceedence of the ROD established levels, then an exceedence investigation plan will be submitted to the U.S. EPA and IDEM.

### Residential Well Monitoring

If sampling of residential wells is conducted, the samples will be analyzed for CLP Target VOC, SVOCs, PCBs or selected metals at DQO Level IV using the CLP Statement of Work (QAPP Table 1-1). Private well locations are shown in Figure 8. The results will be provided to the U.S. EPA and the IDEM, who will determine if residential well closures or groundwater use advisories are indicated. The U.S. EPA and IDEM will be responsible for providing the results to the well owners/users. The results will be provided to the U.S. EPA within two weeks after completion of data validation. If groundwater use advisories or residential well closures are determined to be required, the Respondents will implement the Groundwater Use Advisory/Well Closure Contingency Plan as discussed in Section 4.2 of the Pre-Design Work Plan.

## 3.3 EVALUATION OF THE WETLANDS

II. 1  
Surface water and soil sediment samples are proposed below, but the actual locations will be determined in the field with Agency oversight. Three soil/sediment sample locations are proposed to determine the presence or absence of impacts in the area north of the On-Site Containment Area (SD28, SD29, and SD30) (Figure 7). Other areas of potential runoff from the ACS plant site will also be sampled further including the vicinity of RI samples SD3 (SD21, SD22, and SD23), SD4 (SD20), SD11 (SD26 and SD27), SD12 (SD24 and SD25) and SD16 (SD17, SD18, and SD19). Proposed sample locations SD31 and SD32 will be collected near the RI sample SD7C. Three sediment samples (SD33, SD34, and SD35) will be collected at the proposed location of the groundwater treatment effluent discharge diffusers (Figure 7). Two proposed samples (SD36 and SD37) will be collected in the marsh area northwest of the proposed sample locations SD24 and SD25, due to groundwater contamination detected during the upper aquifer investigation. Proposed sample locations are based upon topography, surface water routing, and past sampling results. The proposed sample locations SD17 through SD37, are shown on Figure 7. One sample will be collected from the top six inches of soil/sediment

at each location and submitted for laboratory analysis.

Surface water samples will be collected from the drainage ditch that runs on the north and west of the wetlands and a tributary (Figure 7). Two surface water samples will be collected at an upstream location (SW9 and SW14) and four in downstream locations (SW10, SW11, SW12, and SW13) and from pooled water within the wetlands (i.e., the tributary). The upstream sample location will provide an indication of the quality of the surface water entering the ditch from offsite. Surface water samples from the ditch will provide an indication of the quality of the groundwater discharging to the wetlands, although such samples will also include potential effects from upstream influences and groundwater discharge from areas on the opposite side of the ditch from ACS. Samples will also be collected from standing water in the wetlands, if possible. Water samples of standing water in the wetlands would provide the best data to evaluate the potential impacts of groundwater discharge to the wetlands, and up to three such samples may be substituted for downstream ditch samples as conditions permit. Surface water and sediment samples will be collected downstream to upstream to minimize disturbance to samples. Sampling SOPs are included in Appendix C of the QAPP. In the event of weather conditions which may affect the ability to collect surface water samples (i.e., wetlands are dry due to drought condition, surface water is frozen due to extreme cold, etc.), the surface water sampling will not be performed until weather conditions are appropriate for sampling.

Two surface water samples (SW15 and SW16) will be collected at the sediment sampling locations SD37 and SD36, respectively. Surface water samples SW18, SW19, and SW20 will be collected from three locations in the cattail marsh near the area where the groundwater treatment effluent will be discharged. These surface water sampling locations correspond with sediment sampling locations SD33, SD34, and SD35. Surface water sample SW17 will be collected from the ditch where the RI sample SD7C was collected. This sample location corresponds with sediment sample SD31. The samples will be collected and analyzed as described above, and the actual locations will be staked and labeled in the presence of U.S. EPA and/or IDEM representatives before sampling activities begin.

### 3.4 WELL ABANDONMENT

Monitoring well ATMW-4B, the two unused ACS water supply wells, and Griffith Landfill monitoring well MW-4D are proposed for abandonment. ATMW-4D is located west of the ACS plant area near the eastern boundary of the wetlands, and was installed by ATEC Associates Inc. for the ACS Site owners in a previous investigation. MW-4D is located near the northwest corner of the Offsite Area, between the Griffith landfill and the Offsite Area, and was installed by the owner/operators of the Griffith Municipal Landfill. No sampling of these wells is anticipated.

None of the wells described above are part of the ACS NPL Site monitoring well network and will not be replaced. MW-4D is part of the Griffith Municipal Landfill Monitoring well network, and may require replacement. It appears that these Lower Aquifer monitoring wells



both VOC aliquots (sample and duplicate) will be collected prior to collecting other aliquots that may be required.

After sampling at a well is complete, a bailer will be sent to the bottom of the wells suspected of potentially containing DNAPL, and the bailer contents will be inspected.

#### **Residential Well Sampling**

If residential wells are sampled, the water system will be purged for approximately fifteen minutes prior to sampling. Following system purging, samples will be collected at the faucet closest to the source, preferably at a location prior to in-line water conditioning systems. Screens, aerators, filters, etc. will be removed where possible. The water flow from the tap will be adjusted, where possible, to a smooth-flowing stream at approximately 500 ml/min. Volatile samples will be collected first by holding the sample vial at an angle, directly under the tap, and allowing the water to run down the inside of the bottle until it is filled. This procedure will minimize agitation. The remaining sample bottles will then be filled (if any needed).

### **5.3 EVALUATION OF THE WETLANDS**

#### **5.3.1 Objective**

The objective of this activity is to provide additional delineation of potential impacts identified in the wetlands.

#### **5.3.2 Personnel and Responsibilities**

This task will require two field technicians to collect, package and ship the samples.

#### **5.3.3 Methods**

Surface water samples to be analyzed for VOCs will be collected first to minimize volatilization, followed by other organics, then metals. Samples will be collected from least to most contaminated locations, if this can be determined. Surface water samples will be collected for analysis of total metals, and will not be field filtered. Surface water samples will not be analyzed for dissolved metals. Measurement of pH, specific conductance, temperature, and redox potential will be performed in the field. If possible, surface water samples will be collected by dipping the sampling container into the water body. Otherwise, surface water samples will be collected using stainless steel dippers as sampling equipment. Sampling equipment will be decontaminated using a non-phosphate laboratory detergent solution and rinsed with distilled water. If surface water samples are being collected in conjunction with sediments, surface water will be collected prior to sediment samples. Sediment sampling procedures are included in Appendix C of the QAPP.

II. 3. Surface water and sediment samples will be collected moving upstream. Sediment samples will be collected, following surface water sample collection, using a hand-corer. The hand-corer will be driven to a depth of 6 inches and splits of the material will be collected in the appropriate sample bottles. Grab samples for VOCs and SVOCs will be collected first from the entire

Management Review	_____
Other	_____
Technical Review	_____
Project Manager	_____
Graphic Standards	_____
Local Professional	_____
QUALITY CONTROL	_____

This document has been developed for a specific application and may not be used without the written approval of Montgomery Watson.

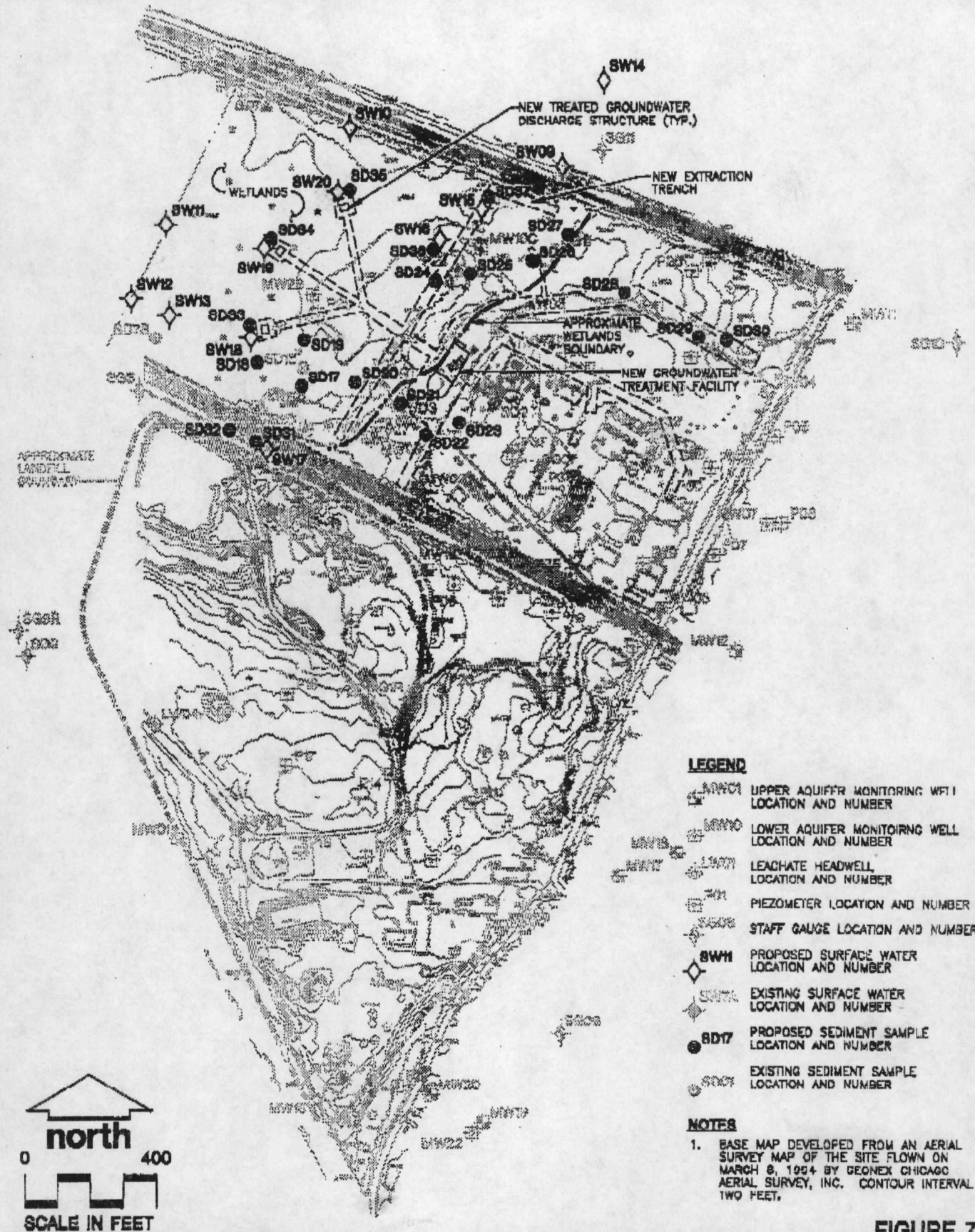


FIGURE 7

Developed By PMS,DAP,MJH

Drawn By TMS,LCI,TPR

Approved By

Date

Reference

Revisions

### PROPOSED WETLANDS SAMPLING LOCATION MAP

PRE-DESIGN WORK PLAN,  
FIELD SAMPLING PLAN  
AMERICAN CHEMICAL SERVICE, INC.  
NPL SITE  
GRIFFITH, INDIANA

Drawing Number

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**MONTGOMERY  
WATSON**


**TABLE 1-1**  
**Sample Type and Estimated Sample Numbers**  
**American Chemical Service, Inc. NPL Site**  
**Remedial Investigation**

<u>Sample<sup>1</sup> Matrix</u>	<u>Lab<sup>2</sup></u>	<u>No. of Samples</u>	<u>Field<sup>3</sup> Duplicates</u>	<u>Field<sup>3</sup> Blanks</u>	<u>MS/MSD<sup>4</sup></u>	<u>Total No. Samples</u>	<u>Lab<sup>5</sup> Parameters</u>	<u>Field Parameters</u>	<u>Lab Methods</u>
<u>UPPER AQUIFER INVESTIGATION</u>									
Groundwater	None	50	-	-	-	50	None	VOC Screening	Vender
<u>DETECTION/COMPLIANCE MONITORING</u>									
Groundwater	IEA	19	2	2	1	24	Volatiles	pH, Cond, temp	CLP/SOW OLM01.9
		19	2	2	1	24	SVOCs		
		19	2	2	1	24	PCBs		
		19	2	2		23	Metals		
<u>RESIDENTIAL WELL SAMPLING</u>									
Groundwater (Low Level)	IEA	-	-	-	-	-	Volatiles	pH, Cond, temp	CLP/SOW 10/92
<u>WETLANDS SAMPLING</u>									
Surface Water	IEA	12	2	2	1	17	Volatiles	pH, Cond,	CLP/SOW OLM01.9
	IEA	12	2	2	1	17	Semi-Volatiles	temp, DO	
	IEA	12	2	2	-	16	Fe, Pb, Hg, Zn, Cd, CN		CLP/SOW ILM03.0
	IEA	12	2	2	1	17	PCBs		CLP/SOW OLM01.9
Soil/Sediments	IEA	21	3	-		26	VOCs		
	IEA	21	3	-		26	SVOCs		
	IEA	21	3	-		26	PCBs		
	IEA	21	3	-	-	24	As, Cd, Cr, Cu, Hg, Pb, Zn		CLP/SOW ILM03.0

## General Notes:

1. Unless otherwise noted, samples will be considered low concentration, and will be packaged and shipped accordingly.
2. Lab Address and Telephone Number  
IEA Laboratories  
3000 Weston Parkway  
Cary, North Carolina 27513  
1-800-444-9919
3. A trip blank for VOC analysis will be included with each cooler shipped for aqueous (groundwater and surface water) samples. Trip blanks are not included in the total number of samples.
4. Field duplicates will be collected at a ratio of 1 field duplicate for each 10 investigative samples collected.
5. Field blanks will be collected at a ratio of 1 field blank for each 10 aqueous investigative samples collected.
6. EXTRA VOLUME REQUIREMENT: Extra volume is required for the MS/MSD quality control requirements for aqueous samples (triple volume for VOCs, double volume for SVOCs and PCBs.). MS/MSD samples will be collected at a ratio of 1 MS/MSD for each 10 investigative samples. Samples collected for metals and indicators require DUP/MS quality control analyses, however, do not require additional volume to meet the specified QC.
7. Refer to Tables 3-1 through 3-4 for the organics, metals, and groundwater VOC screening parameters and their required detection limits.

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TABLE 1-3

**Summary of Data Generating Activities and Associated Quality Objectives  
American Chemical Service Inc. NPL Site  
Remedial Investigation**

<u>Activity</u>	<u>Description</u>	<u>Intended Data Usages</u>	<u>Parameter<sup>1</sup></u>	<u>Data Quality Objective</u>	<u>Anticipated No. of Investigative Samples</u>
Groundwater Investigation	Collection of approximately 50 groundwater samples using a geoprobe and field screening for VOCs.	Assess the current extent of groundwater contamination around site perimeter, and locate new monitoring wells.	Selected VOCs by Field GC	2	50 groundwaters
Detection/Compliance Monitoring	Sample 13 groundwater monitoring wells semi-annually. Analyze for TCL VOCs.	Periodically assess extent of groundwater contamination prior to installation of Perimeter Groundwater Containment system.	TCL VOCs pH, Cond, temp	4 1	13 groundwaters 13 groundwaters
Residential Well Sampling	Sample residential wells and analyze for TCL VOCs using low concentration method.	Analyze private wells for low concentration VOCs, to determine if action to mitigate potential exposure is needed.	Low Conc. TCL VOCs pH, Cond, temp.	4 1	none none
Wetlands Investigation	Collect 12 surface water and 21 soil/sediment samples and analyze for TCL VOCs, SVOCs, PCBs, and selected TAL metals.	Further define potential affects to wetlands from groundwater discharge and/or direct runoff from Site.	Surface Waters: TCL VOCs, SVOCs, PCBs Cd, Fe, Pb, Hg, Zn, CN pH, Cond, temp, DO Soil/Sediment: TCL VOCs, SVOCs, PCBs As, Cd, Cr, Cu, Pb, Zn	4 4 1 4 4	12 surface waters 12 surface waters 12 surface waters 21 soil/sediment samples 21 soil/sediment samples
Vertical Profile Groundwater	Collect approximately 8 groundwater samples and analyze for TCL VOCs	Further define the vertical extent of groundwater contamination in the lower aquifer	TCL VOCs	2	8 groundwater samples

## General Notes:

1. Refer to Tables 3-1, 3-2, 3-3, and 3-4 for the parameter lists and required detection limits.

Revised Page 2 of Surface Water SOP

**MONTGOMERY WATSON****FIELD SAMPLING AND TESTING SOPs AND TGDs**

Section: Sediment Sampling and Testing	Section Number 401	Date of Issue April 1993	Reviewed By S. Wiskes
Subject: Sampling Chemical Analysis	Page of 2 6	Date Revised	Authorized By K. Quinn

4. Proper sample containers (see Table 2) should be used. Sediment samples are not chemically preserved.

**Procedures:**

1. Apply at least a temporary label to the sampling containers prior to sample collection. Label information must include the sampling location, and should include date, time, sampling personnel, and project numbers.
2. At the specific sampling location, drop, push, or twist the sampling device into the sediment to the required depth. Remove the sampler from the sediment and transfer the sampler to a stainless steel bowl. A stainless steel spoon may be used to help transfer the sample to the bowl. Sediment samples shall be collected from downstream, moving upstream.
3. If possible, remove sediments directly from the sampling device to sampling jars for VOC analysis, including fine-grained materials. For VOC samples, minimize head space, including air pockets in the sample material.
4. To obtain sufficient sample volume, collect additional sample material from an area adjacent to the initial sampling point. Composite sediments in the stainless steel bowl and mix them thoroughly stainless steel spoon prior to filling sample containers (this does not apply to sample fractions for VOC analysis).
5. After they are sealed, sample containers can be rinsed in the water overlying the sample sediments as a gross decontamination procedure. Samples should be maintained at 4°C with icepacks.
6. The sampling device must be cleaned prior to use at the first sampling location and between sampling locations. Cleaning, unless specified otherwise in a Work Plan, is by means of a tap water and detergent wash and tap water and deionized water rinses. A bristle brush may be used for the wash.

II. 5.

## **SURFACE WATER SAMPLING**

Surface water sampling may include samples collected from swales, ditches, retention ponds, lakes, streams, or rivers. For most instances, grab sampling using a decontaminated stainless steel or Teflon™ ladle or a sample container is adequate. In general, sampling devices will be constructed of non-reactive materials such as glass, stainless steel or Teflon™.

### **Equipment:**

1. Stainless steel or Teflon™ ladle
2. Iced cooler with appropriate sample containers
3. Paper towels
4. Squirt bottle with DI water
5. Plastic bags

### **Procedure:**

1. Before collecting samples, thoroughly evaluate site. Observe the number and location of sample points, landmarks, references. Record pertinent observations, include a sketch, where appropriate, identifying sample locations.
2. Decontaminate sampling equipment prior to entering site and place in labelled sealable plastic bags for transport to the site.
3. Place sample containers on stable surface to receive sample.
4. Start collecting samples moving upstream.
5. Carefully lower the sampling ladle into the water at an angle to allow sample to slowly flow into cup. Avoid aeration of the sample and disturbing sediments. If sampling from flowing water, the mouth of the ladle should be positioned so that it faces upstream, while the sampling personnel are standing downstream. If sample is to be collected at a specified depth, the sampler can be submerged inverted and turned upright at the appropriate sample depth.
6. Carefully fill three pre-preserved VOA vials first.
7. Label vials and record ID numbers in the field notebook.
8. Put vials in sealable plastic bag and return them to the iced cooler.
9. Rinse extractable organics bottle with a small amount of sample, and fill leaving one-half

inch headspace. Label bottles, record ID numbers in notebook, place bottles in sealable plastic bag, and return them to iced cooler.

10. Fill remaining sample containers (extractable organics, metals, etc.) as appropriate. Do not rinse bottle containing preservatives (e.g. metals). Slowly pour sample into container, leaving one-half inch headspace. Label bottles, record ID into notebook, and place samples into sealable plastic bag before returning them to iced cooler.
11. For preserved samples (except zero-headspace volatiles and extractable organics), cap and shake sample to mix with acid. Pour a small portion of sample into a clean sample cup and check pH with narrow range paper. If pH is as required, record in notebook and return sample to iced cooler. If pH is not in target range, add additional preservative, cap, shake and test new aliquots until proper pH is attained. Do not return aliquots to sample container. Record amount of additional preservative in field notebook. If additional preservative is required, the same volume must be added to the appropriate equipment blank. Metal samples will not be filtered.
12. All notebook entries must note the time of day of each activity.
13. Upon completion of sample collection at a specific sampling location, rinse sampling equipment with DI water and place in a labelled plastic bag for later decontamination. Decontaminate equipment either at the designated site location or back at the laboratory. Use a clean pre-decontaminated ladle for each sample location.

Notes:

1. Depending on the nature of the surface water body being sampled, it may be necessary to decontaminate the outside of sample containers following sampling activities. This should be performed at the specified site decontamination area.
2. Under certain circumstances (easy accessibility), surface water samples may be collected by merely submersing the sample container (not pre-served). This has the advantage of minimizing the risk of sample alteration due to transfer.

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**Cross-reference of Surface Water and Sediment Sampling Locations  
ACS NPL Site RD/RA Pre-Design Wetland Investigation**

<u>SW</u>	<u>SD</u>	<u>Location</u>
9		North ditch
10		North ditch
11		Ditch to west
12		Ditch to west
13		Near ditch to west
14		Ditch to north
15	37	Near extraction trench
16	36	Near extraction trench
17	31	Near rail by LF dewatering
	32	North of dewatering
	17	400 feet west of ACS
	18	600 feet west of ACS
	19	500 feet west of ACS
	20	300 feet west of ACS
	21	200 feet west of ACS
	22	ACS fence line
	23	west impoundment on ACS site
	24	200 feet NW of ACS
	25	150 feet NW of ACS
	26	200 feet NW of ACS
	27	200 feet north of ACS
	28	along north fence line
	29	along north fence line
	30	along north fence line
18	33	South gw discharge structure
19	34	West gw discharge outlet
20	35	Northwest gw discharge outlet
12	21	Total Number

FAX



MONTGOMERY WATSON

2100 Corporate Drive  
Addison, Illinois 60101Date: May 13 1996

Tel: (708) 691-5000

Fax: (708) 691-5133

To: Jim ChagmanFax No.: 312-353-9281Company: US EPA

Reference: \_\_\_\_\_

From: Peter Vajt

Subject: \_\_\_\_\_

## COMMENTS

JimHere is a copy of the enlarged map of  
the ACS wetland Study Area.Please call me (708-691-5020) or if I'm  
not in, Clayton Heffer at 708-691-5023  
to confirm the time to meet on site tomorrowTHBPV

If you do not receive all pages, or if there are any problems with this transmission, please call  
(708) 691-5000. Operator: Danna No. of pages including cover: 3